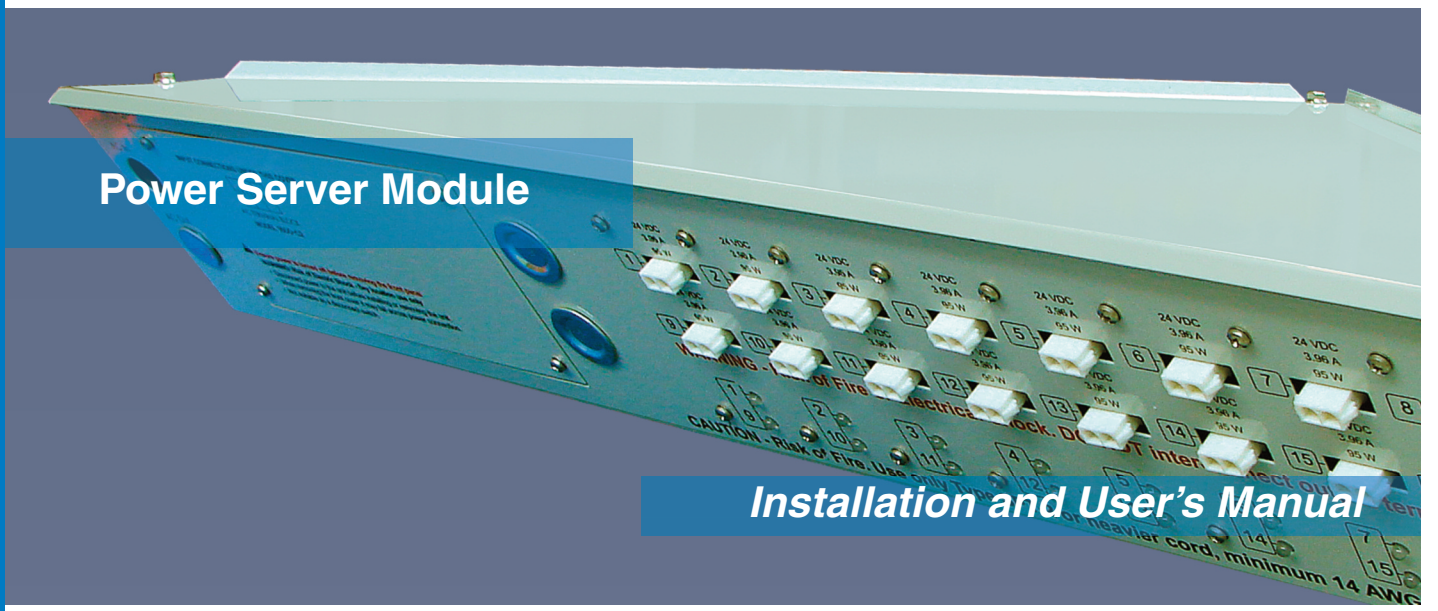
NEXTEK
Power Systems



Power Server Module

Installation and User's Manual

Model 1600-C2 DC Power Supply and
Model 1600-C2-24 V AUX DC Power Supply
16 Channel, Class 2, 24 VDC Output

Please contact Customer Support at 1-800-24VOLTS for further information.

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ABOUT NEXTEK POWER SYSTEMS

Nextek Power Systems AC/DC integration technology represents a breakthrough in on-site electrical management, combining the availability of AC power with the quality and efficiency of a DC supply.

NEXTEK PRODUCT BENEFITS

- Easy conversion of AC lighting fixtures to DC-powered units
- Easy conversion of AC grid power into DC power for commercial building applications
- Highly efficient management of peak loads
- Future-proof lighting and other systems to be developed
- Nextek Power Systems Direct Coupling® Technology, directly connects clean power generated at a building to its electronic loads inside cutting down on overall power consumption, boosts electricity generated and stored on-site, and delivers a robust renewable energy ready network.

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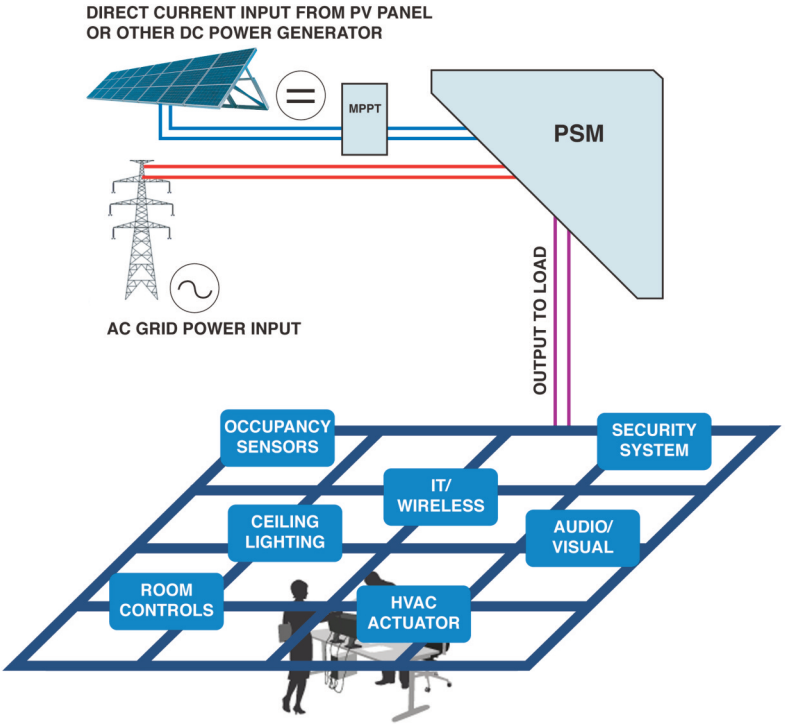
INTRODUCTION

Power Server Module

- *Nextek's* **Power Server Module** converts 208 or 240 V AC power to 24 V DC through 16 individual Class 2 outputs. The Power Server Module has a wireless remote control and monitoring system.

- **The system advantage** of the Power Server Module is a safe, low-voltage DC distribution system that supports quick plug-and-play, energy efficient and individually controllable Direct Current (DC) lighting and other loads.

- The **patented triangular design** of the Power Server Module makes for a clean fit into a suspended ceiling grid.



The Sun Never Goes Down on a Power Server Module

Nextek's **Power Server Module** accepts power inputs from both DC and AC sources, to ensure your systems are never without power. When the DC resource is no longer available, the PSM automatically converts AC power to DC.

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1.0 SAFETY

1.1 SAVE THESE INSTRUCTIONS– This manual contains important safety and operating instructions for the Nextek Power Server Module (PSM) Model 1600-C2 and 1600-C2-24 V AUX.

The following symbols are used throughout this manual to indicate potentially dangerous conditions or mark important safety instructions:

DANGER:
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING:
Indicates a potentially dangerous condition. Use extreme caution when performing this task.

CAUTION:

Indicates a critical procedure for safe and proper operation of the controller.

NOTE:

Indicates a procedure or function that is important for the safe and proper operation of the controller.

1.2 Before using the PSM, read all instructions and cautionary markings.

1.3 Electrical hazards are probably the most common hazards throughout the industry. Virtually all workplaces have electrical installations and use electricity.

1.4 It is very important that all industry employees be familiar with electrical hazards and know how to protect themselves when working on, near, or with electricity. In most cases, industry electrical and electronic equipment is designed for both maximum safety and efficiency. However, potentially hazardous conditions such as inadvertent contact with hazardous voltages may exist while performing servicing and maintenance, handling materials, or cleaning.

1.5 The improper use of electrical extension cords and portable electrical equipment can result in hazardous exposure.

1.6 **WARNING - RISK OF ELECTRICAL SHOCK**

1.7 **DANGER – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS**

1.7.1 Disconnect power to the receptacle before installing or removing the unit.

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1.0 SAFETY

When removing receptacle cover screw, cover may fall across plug pins or receptacle may become displaced.

1.8 INSTALLATION SAFETY PRECAUTIONS

1.8.1 Mount the PSM indoors. Prevent exposure to the elements and do not allow water to enter the unit.

1.8.2 Power connections must remain tight to avoid excessive heating from a loose connection.

1.8.3 Use properly sized conductors and circuit interrupters.

1.8.4 The PSM output is to be connected to DC circuits only.

2.0 STANDARDS AND REQUIREMENTS

2.1 All AC and DC cable types must meet all local and national codes

2.2 Shut off all AC breakers before installing any unit into the field

2.3 Torque all the Power Server Module wire lugs and ground terminals to 16 inch-pounds (1.8Nm).

2.4 AC wiring to Power Server Module

2.4.1 Use a minimum of 12 AWG, 3 conductor cables to reduce losses and ensure high performance. The terminal block is restricted to a maximum of 4 AWG conductor.

2.4.2 Copper wiring must be rated at 60°C or higher.

2.4.3 A disconnect device must be incorporated in the field wiring.

2.4.4 The Power Server Module must be protected by a circuit breaker.

3.0 REGULATORY INFORMATION

NOTE: This section contains important information for safety and regulatory requirements.

3.1 The PSM should be installed by a qualified technician according to the electrical rules of the country in which the product will be installed.

3.2 Nextek PSM units comply with the following EMC standards:

3.2.1 UL 2043

3.2.2 UL 1310

3.2.3 UL 1012

3.2.4 UL 2577

3.2.5 ROHS

3.2.6 EMerge

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3.0 REGULATORY INFORMAITON

3.3 FCC Requirements:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifi cations not expressly approved by Nextek Power Systems, Inc. for compliance could void the user's authority to operate the equipment.

Note:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

4.0 INSTALLATION QUALIFICATIONS

4.1 Installation work and electrical wiring of permanently-connected power units must be performed only by qualified service personnel in accordance with all applicable codes and standards, including fire-rated construction.

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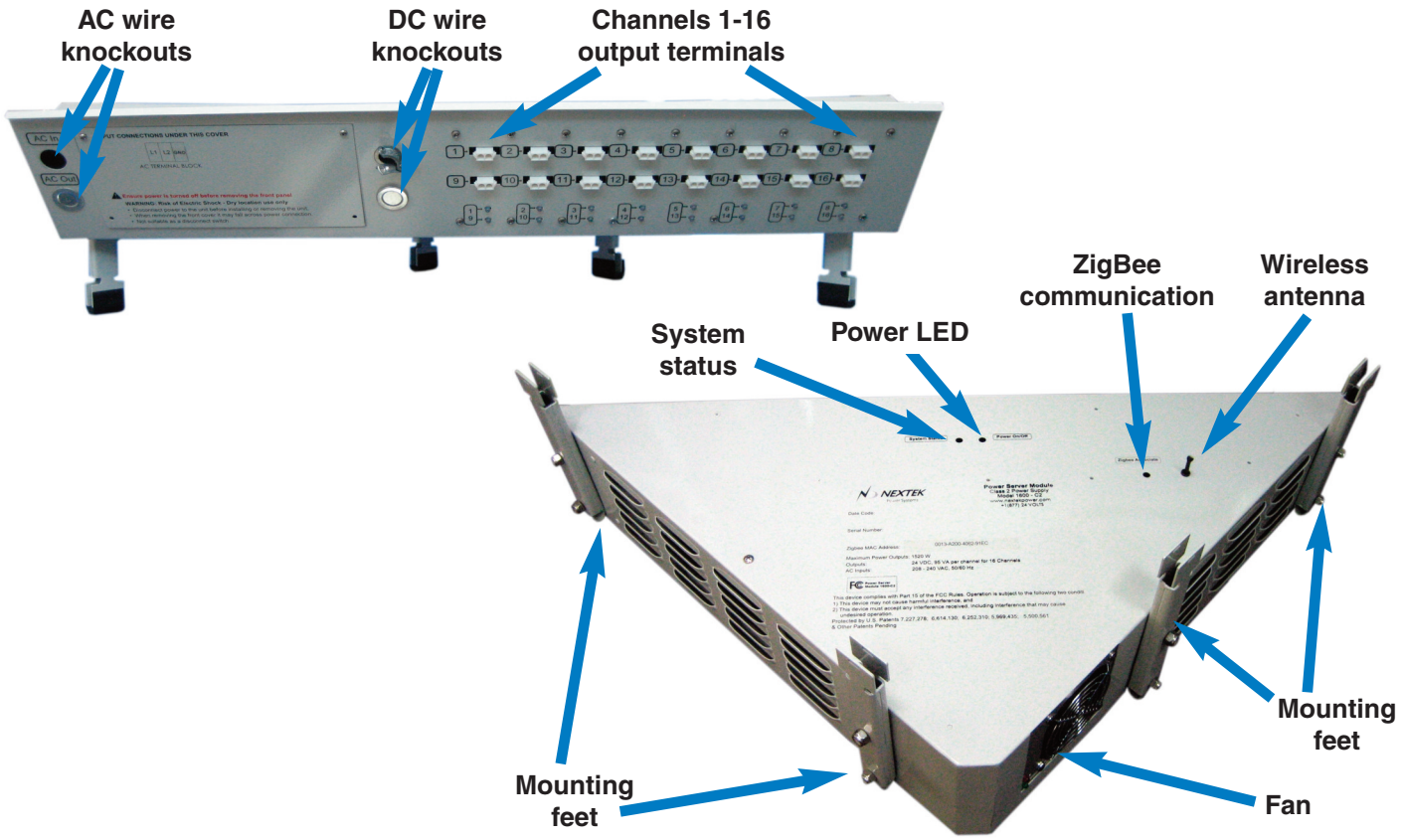
5.0 POWER SERVER MODULE FEATURES

- Easy conversion of AC lighting fixtures to DC-powered systems
- Easy conversion of AC grid power into DC power for commercial building applications
- Converts 208 or 240 VAC power to 24 VDC through 16 individual Class 2 outputs. Includes a wireless remote control and monitoring system
- Safe, low-voltage DC distribution that allows quick plug-and-play, energy efficient and individually controllable DC lighting and other loads
- Complete continuity of supply through the seamless integration of available rechargeable batteries
- Patented triangular design makes for a clean fit into a suspended ceiling grid for ease of installation and removal of ceiling tiles.
- Highly efficient management of peak loads
- Complete continuity of alternative energy sources such as PV, micro turbines and fuel cells
- Unlike conventional installations utilizing DC to AC inverters that must be shut down in the event of a grid power failure (anti-islanding), the Nextek system can stay on and continue to support the DC loads by combining all available DC sources.



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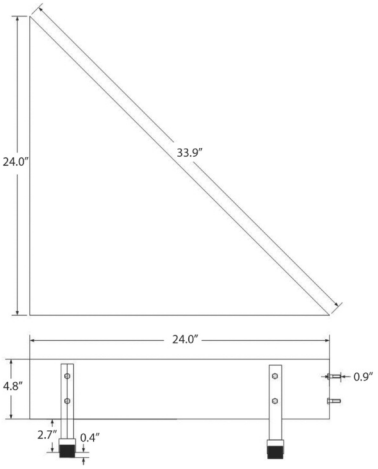
6.0 TECHNICAL SPECIFICATIONS

- **UL2043** - Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
- **UL1310** - Class 2 Power Units
- **UL1012** - Power Units Other Than Class 2
- **UL2577** - Suspended Ceiling Grid Low Voltage Lighting Systems
- **EmergeAlliance® Registered**
- **RoHS** compliant



MECHANICAL	PSM 1600-C2 and 1600-C2-24V AUX
Dimensions	see diagram above
Weight	21.1 lbs.
Mounting Orientation	Flat horizontal surface – using rubber feet Ceiling grid – using plastic grid interconnects
Audible Noise	Less than 15 dBA
Operational Environmental Limits	Temperature Range: 0° to 49°C Humidity: 90% RH non-condensing Vibration: Low-Frequency 10-55 Hz
Storage Environmental Limits	Temperature Range: -40° to 60°C Humidity: 95% RH non-condensing (transport and storage in protective container) Vibration: Low-Frequency 10-55 Hz
Construction	Made of 20 gauge steel, manufactured in U.S.A.
Installation	When installed in a suspended ceiling, installation requires a minimum of 12” from the top of the ceiling grid to the deck.

ELECTRICAL	
Input Power	208 – 240 VAC single phase, 13.5 A max., 50/60 HZ
AUX Input Power	24.0 – 24.5 VDC, 65 A max.; Model 1600-C2-24V AUX only
Output Per Channel	24 VDC ± 5% 95 W maximum current limited to 3.96 A continuous Rated impulse current – 80 A for .2 mSec
Efficiency	Quiescent power = 7W; 90% @ 240 VAC input; 1500 W output
Wireless Communication	Provided through a ZigBee® module series (XBee Series2®) and a Nextek Power Systems software interface (PS Manager). See PS Manager manual for functionality and usage.

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7.0 GENERAL REQUIREMENTS

7.1 Every work environment should provide a safe place for every employee, which includes protecting the employee from electrical hazards such as fault currents to ground.

7.2 When an electrical ground fault occurs, the current flows through the path having minimum impedance to ground. It is imperative that an employee does not inadvertently become the conductor of the current.

7.3 Two approved methods of protecting the worker from a ground fault, in addition to other requirements for equipment-grounding conductors, are:

7.3.1 Use of ground fault circuit interrupters (GFCI)

7.3.2 An assured equipment grounding conductor program

7.4 Installers should be advised:

7.4.1 These installation instructions are for use by qualified personnel only.

7.4.2 The equipment contains DC voltages.

NOTE: Installers must reference the National Electric Code (NEC) sections 250 or 690, when required, to ensure proper system wiring and grounding compliance. In addition, all state and federal Occupational Safety and Health Administration (OSHA) guidelines and regulations must be followed.

NOTE: Installers must reference the specific site scope and project drawings for additional information and considerations, including the system layout and any related electrical drawings.

7.4.3 The mounting location is important to the performance and operating life of the controller. The environment must be dry and protected from water ingress. If required, the controller may be installed in a ventilated enclosure with sufficient air flow. Never install the PSM in a sealed enclosure.

7.4.4 The installation is straightforward, but it is important each step is done correctly and safely. A mistake can lead to dangerous voltage and current levels. Be sure to carefully follow each instruction in this section. Read all instructions first before beginning installation.

7.4.5 The installation instructions are for installation of a negative grounded system. National Electrical Code (NEC) requirements are noted on occasion for convenience, however the installer should have a complete understanding of NEC and UL requirements for photovoltaic installations.

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7.0 GENERAL REQUIREMENTS

7.5 Recommended Tools

7.5.1 Standard construction and electrical tools along with basic electrical safety and testing instruments are required for the installation of the combiner box. This installation requires the following:

#2 and #0 Phillips screwdriver

7/16" wrench

Torque wrench (inch-pounds)

Wire strippers

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8.0 WARNINGS / CAUTIONS

WARNING - Shock Hazard

8.1 The Nextek Power Server Module AC connection should only be performed by trained service personnel.

8.2 The Nextek Power Server Module is designed to keep its external surface temperature from rising more than 30°C above the ambient temperature.

8.3 Treat any conductors and parts of electric equipment as energized that have been de-energized, but have not been properly locked or tagged out and tested to a zero energy state.

LOCKOUT/TAGOUT MUST ALWAYS BE USED.

8.4 Nextek Power Server Module specifications:

Outputs: 24 VDC, 95 VA per channel for 16 channel(s)

AC Inputs: 208 - 240 VAC, 50/60 Hz

DC input: 24.0 – 24.5 VDC Max – Only included with Model 1600-C2-24V AUX

NOTE: For 277 VAC, a Nextek Power Systems' Auto-Transformer Model 277-240AT or equivalent is required. (see Section 7.6 for 277 VAC connection).

8.5 AC connections are made inside the Nextek Power Server Module at the terminal blocks.

8.6 The Nextek Power Server Module does not come with the AC supply cable. AC supply must be provided from 3 conductors of 12 AWG minimum. Refer to Table 8.1 for list of acceptable equivalent cords. The terminal block is restricted to a maximum of 4 AWG conductor.

Basic Cord Type	Other Suitable Types
TS	TST
SP-2	SPE-2, SPT-2
SP-3	SPE-3, SPT-3
SV	SVE, SVO, SVOO, SVT, SVTO, SVTOO
SJ	SJE, SJO, SJOO, SJT, SJTO, SJTOO
SE	SE, SO, SOO, ST, STO, STOO

Table 8.1 Suitable Cord Types

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8.0 WARNINGS / CAUTIONS

8.7 There are no operator adjustable voltage selectors in this system for 24 VDC.

8.8 To complete the assembly, the mounting legs must be installed prior to grid installation. Follow installation procedure to install and power up the system.

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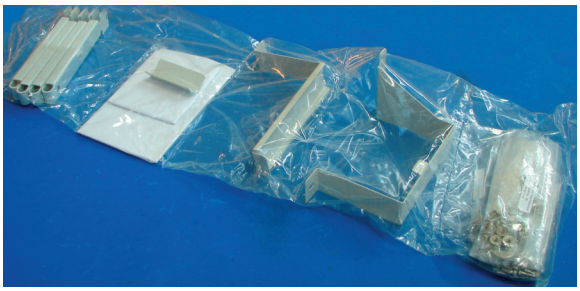
9.0 INSTALLATION PROCEDURE

9.1 Preparing the Power Server Module for Mounting

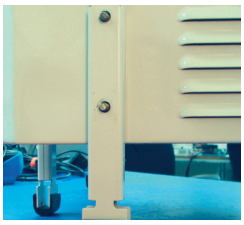
9.1.1 Turn off all main power before starting this project, using the Lock Out Tag Out method. Refer to the facility electrical drawings to identify the mounting locations and any specific electrical location requirements or special instructions. You must mount the Power Server Module in an easy accessible position/location.

9.1.2 In the shipping container there are:

- (4) mounting legs
- (8) 1/4” nuts
- (1) front panel cover
- (4) overhead drop ceiling grid mounting clips
- (4) rubber table top feet



9.1.3 Attach the mounting legs to the Nextek Power Server Module by sliding the legs over the side wall studs.



9.1.4 Place the nut onto each stud and hand tighten using a 7/16" wrench. Torque all (8) 1/4" nuts to 48 inch-pounds (5.4 Nm)

9.1.5 Attach the mounting legs to the Nextek Power Server Module in four locations.

9.2 Installing the Power Server Module in a Suspended Ceiling Application

9.2.1 Specifications for Suspended Ceiling Mating shall be as follows:

9.2.1.1 The grid shall be rated “Heavy Duty” in conformance to ASTM C635.

9.2.1.2 The material of construction shall be hot-dipped galvanized steel.

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9.0 INSTALLATION PROCEDURE

9.2.1.3 The grid shall be capable of supporting four times (4X) the weight of this unit.

9.2.1.4 The top section of the grid to which the plastic feet clips mate shall be nominally 0.250 inches wide and 0.625 inches high. See Figure 9.2.

9.2.1.5 The suspended grid system should be installed in conformance to ASTM C636

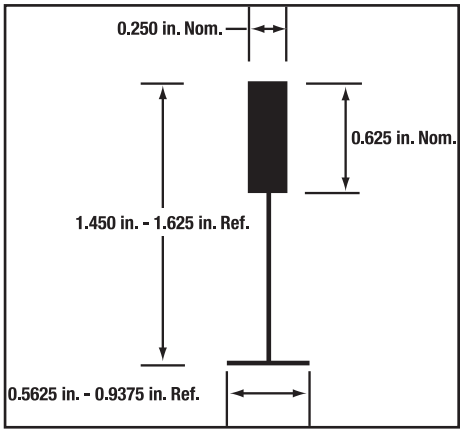


Figure 9.2

9.3 Installing the Power Server Module onto the Grid

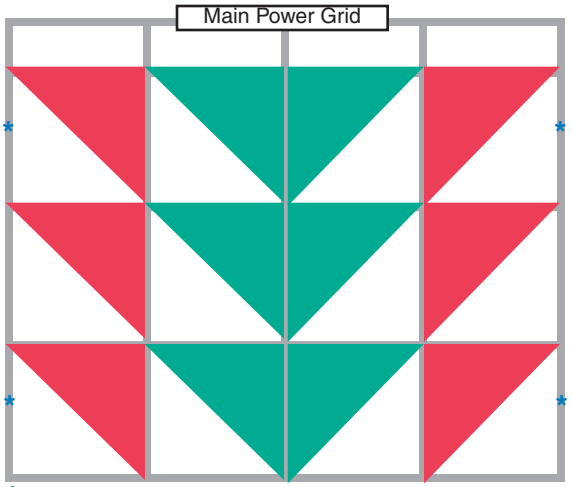
9.3.1 When installed in a suspended ceiling, installation requires a minimum of 12" from the top of the ceiling grid to the deck, dependent on adjacent obstructions.

9.3.2 Place the Power Server Module on the ceiling grid channel. Mark the location of the stands on the grid with a marker. Lift the Power Server Module up and place the clips in the marked location. Bring the Power Server Module back to original position such that the Power Server Module legs will be right over the clips. Press down on the Power Server Module to snap in place.

CAUTION: WHEN PLACING THE POWER SERVER ON THE CEILING GRID, ENSURE THAT TWO OF THE LEGS ARE MOUNTED ON A MAIN BEAM FOR THE CEILING GRID WHILE THE OTHER TWO LEGS ARE MOUNTED ON A CROSS GRID BEAM.

NOT APPROVED:
Mounting locations incorrect. 2 legs **are not** on a main power rail with hanger wire.

APPROVED:
Mounting locations correct. 2 legs **are** on a main power rail with hanger wire.



* Hanger wire location

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9.0 INSTALLATION PROCEDURE

9.3.3 The Power Server Module can be mounted onto the rail at a distance of 4.063” from the main railing Tee-To-Tee connection.

9.3.4 Position of Power Server Module installation is in accordance with suspension system installed to ASTM C636.

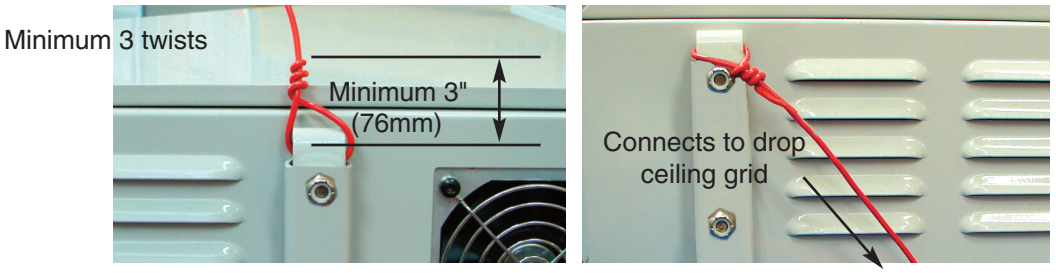
9.3.5 If required by local zoning laws, the following mounting attachment points can be used:

9.3.5.1 One (1) hanger wire (suspension wire) of 10 to 12 gauge soft annealed wire can be used on top of each leg.

9.3.5.2 One (1) hanger wire shall be attached to every other leg of the Power Server Module and attached to the overhead bracing structure above. These wires are taut or tight as required by local zoning ordinance. Refer to the image below:

9.3.5.3 Another hanger wire shall be attached to every other leg of the Power Server Module and attached to the drop ceiling grid below. These wires are tight or taut as required by local zoning ordinance. Refer to the image below:

9.3.5.4 All wire ties are to be three tight turns around itself within three inches. Refer to the image below:

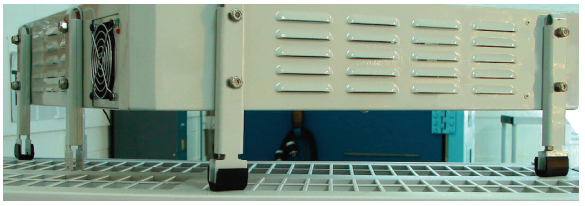


9.3.5.5 Must conform with all local and other authorities having jurisdiction.

9.4 Installing the Power Server Module in a Flat Surface Application

9.4.1 Install the rubber feet onto the bottom of the legs.

CAUTION: WHEN PLACING THE POWER SERVER ON A TABLE OR FLAT SURFACE, ENSURE THAT THE PLASTIC CLIPS ARE NOT USED AND THE RUBBER FEET ARE PLACED OVER THE BOTTOM OF THE LEGS TOUCHING THE TABLE TOP.



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9.0 INSTALLATION PROCEDURE

9.5 Making the Electrical Connections for the Power Server

NOTES:

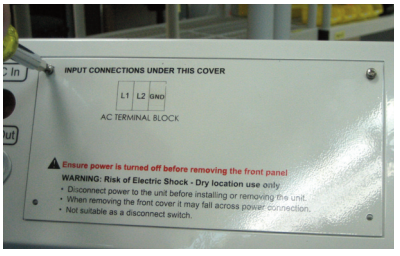
1. The power server module may be wired directly to 208 or 240 VAC service only. For 277 VAC service, the Power Server Module should be ordered as the 277 Volts Input PSM 1600-C2 *Auto Transformer Included* as described in section 9.5.3
2. Conductor colors listed below are provided as guidance only for installations in the United States. It is the installer's responsibility to follow all local and national codes.

9. 5.1 For 208 VAC service

NOTE: NO NEUTRAL: There is no Neutral (usually White or Gray) conductor required for 208 VAC service. If a Neutral conductor exists in the cable, it must be capped off and not used BOTH at the Power Server AND at the circuit breaker panel.

9.5.1.2 A 2-pole single throw breaker must be used at the breaker panel to ensure that if the breaker trips, both L1 and L2 are not live at the Power Server Module.

9.5.1.3 Remove 4 screws from left side front panel and remove the panel.


INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only
• Disconnect power to the unit before installing or removing the unit.
• When removing the front cover it may fall across power connection.
• Not suitable as a disconnect switch.

9.5.1.4 Insert AC cable through hole on top left side of the Power Server Module. Use a flex relief/clamp (not provided) to position the cable in hole and to protect it from sharp edges.

9.5.1.5 The supply circuit shall contain two of the three phases of a 208Y VAC service (Usually Black, Red or Blue) and one Earth Ground conductor (usually Green). Connect one of the AC phases to the terminal block located inside the open panel to the position marked L1 and the other AC phase to L2. It does not matter which phase goes to L1 or L2. Connect the Earth Ground conductor to the Terminal Block at the position marked GND.

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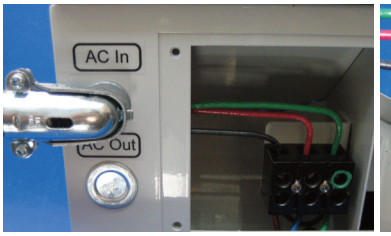
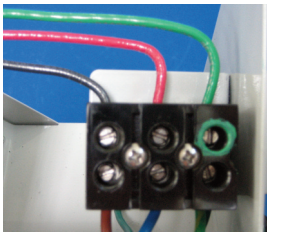
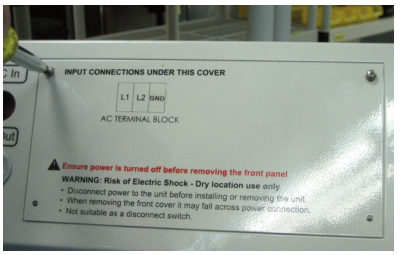
9.0 INSTALLATION PROCEDURE

9.5.1.6 Torque all (3) terminal block set screws to 16 inch-pounds (1.8Nm).





9.5.1.7 Replace the front panel with four screws.

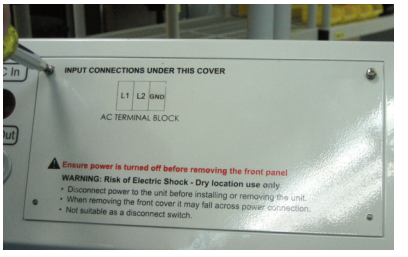

INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only.
• Disconnect power to the unit before installing or removing the unit.
• When removing the front cover it may fall across power connection.
• Not suitable as a disconnect switch.

9.5.2 For 240 VAC Service

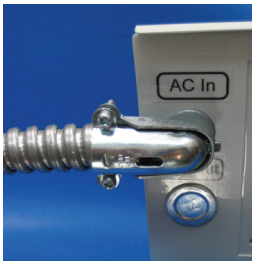
NOTE: NO NEUTRAL: There is no Neutral (usually White or Gray) conductor required for 240 VAC service. If a Neutral conductor exists in the cable, it must be capped off and not used BOTH at the Power Server AND at the circuit breaker panel.

9.5.2.1 A 2-pole single throw breaker must be used at the breaker panel to ensure that if the breaker trips, both L1 and L2 are not live at the Power Server Module.

9.5.2.2 Remove 4 screws from left side front panel and remove the panel.


INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only.
• Disconnect power to the unit before installing or removing the unit.
• When removing the front cover it may fall across power connection.
• Not suitable as a disconnect switch.

9.5.2.3 Insert AC cable through hole on top left side of the Power Server Module. Use a flex relief/clamp (not provided) to position the cable in hole and to protect it from sharp edges.



9.5.2.4 The supply circuit shall contain two of the three phases of a 208Y VAC service (Usually Black or Red) and one Earth Ground conductor (usually Green). Connect one of the AC phases to the terminal block located inside the open panel to the position marked L1 and the other AC phase to L2. It does not matter

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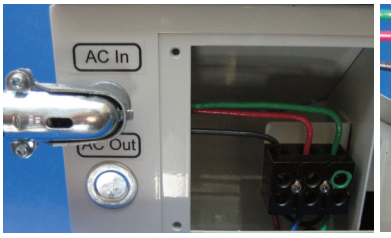
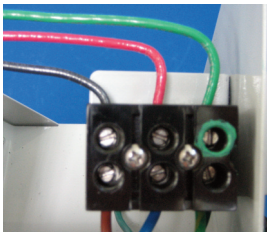
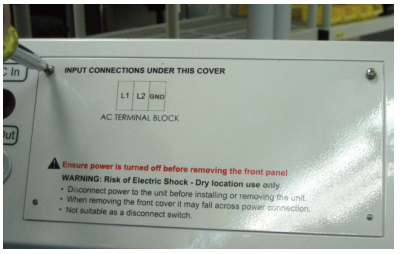
which phase goes to L1 or L2. Connect the Earth Ground conductor to the Terminal Block at the position marked GND.

9.5.2.5 Torque all (3) terminal block set screws to 16 inch-pounds (1.8Nm).





9.5.2.4 Replace the front panel with four screws.


INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only
• Disconnect power to the unit before installing or removing the unit.
• When removing the front cover it may fall across power connection.
• Not suitable as a disconnect switch.

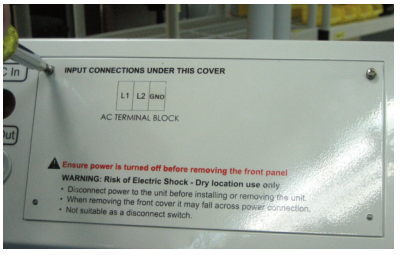
9.5.3 For 277 VAC Service

9.5.3.1 The PSM cannot connect to 277 VAC directly at this time. Instead, Power Servers meant for connection to 277 VAC should be ordered as a 277 Volts Input PSM 1600-C2 *Auto Transformer Included*.

9.5.3.2 Follow the Installation Instructions that came with the Nextek AutoTransformer Model 277-240AT. [The two hot outputs of the Auto-Transformer L1/3 and L4 and the Ground wire will be the inputs to the Power Server Module.]

9.5.3.3 A 2-pole single throw breaker must be used at the breaker panel in front of the Nextek Auto-Transformer to ensure that if the breaker trips, both L1 and L2 are not live at the Nextek Auto-Transformer and Power Server Module.

9.5.3.4 Remove 4 screws from left side front panel and remove the panel.


INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only
• Disconnect power to the unit before installing or removing the unit.
• When removing the front cover it may fall across power connection.
• Not suitable as a disconnect switch.

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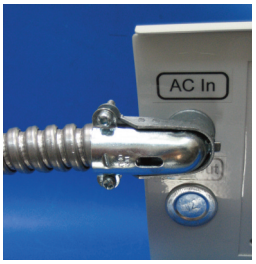
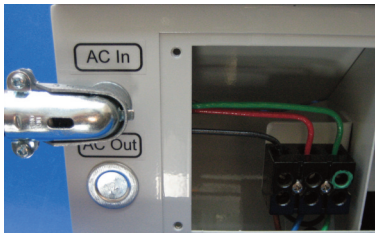
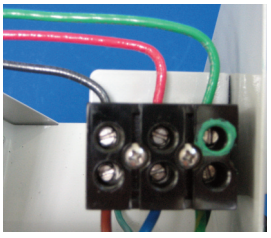
9.5.3.5 Insert AC cable from Nextek Auto-Transformer Model 277-240AT through hole on top left side of the Power Server Module. Use a flex relief/clamp (not provided) to position the cable in hole and to protect it from sharp edges.



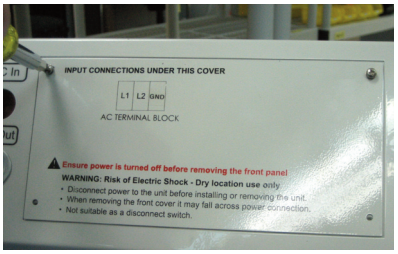
9.5.3.6 The two hot outputs of the Auto-Transformer L1/3 and L4 and the Ground wire will be the inputs to the Power Server Module. Connect these two hot wires from the Auto-Transformer (L1/3 and L4) to the terminal block located inside the open panel to the positions marked L1 and L2 on the Power Server Module. It does not matter which wire goes to L1 or L2. Connect the Earth Ground conductor from the Auto-Transformer to the Terminal Block at the position marked GND on the Power Server module.

9.5.3.7 Torque all (3) terminal block set screws to 16 inch-pounds (1.8Nm).





9.5.2.4 Replace the front panel with four screws.


INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only
Disconnect power to the unit before installing or removing the unit.
When removing the front cover it may fall across power connection.
Not suitable as a disconnect switch.

9.6 Wiring the DC AUX Input Only Included with Model 1600-C2-24V AUX

WARNINGS:

AUX input must not be capable of sinking current from the Power Server Module.

The input is unidirectional and cannot be used as an output.

A battery cannot be directly connected to the AUX input terminals.

Caution at the DC terminals must be taken because up to 75 amps of current is available to back feed at the AUX input terminals.

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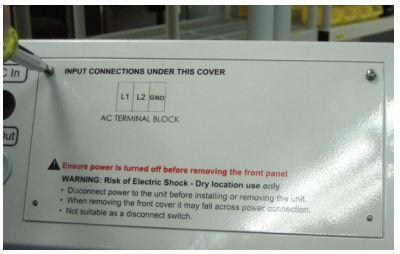
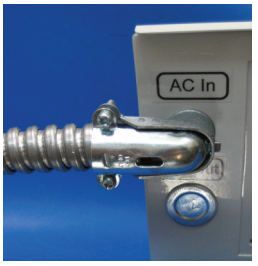
Two conductor cables rated for 80 amps must be used.

Only use Nextek Power Systems approved equipment that has back feed prevention capability.

9.6.1 Remove 4 screws from left side front panel and remove the panel.


INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only.
• Disconnect power to the unit before installing or removing the unit.
• When removing the front cover it may fall across power connection.
• Not suitable as a disconnect switch.

9.6.2 Insert D.C. wiring through hole on the top right side of Power Server Module Use a flex relief/clamp (not provided) to position the cable in hole and to protect it from sharp edges.



9.6.3 Connect the two DC supply wires to the terminal block located inside the open panel in the following order: Negative (Black) AUX-, Positive (Red) AUX+. The input is rated for 24.0 – 24.5 VDC, 65 A max.

Torque both terminal set screws to 16 inch-pounds (1.8Nm).

NOTES:

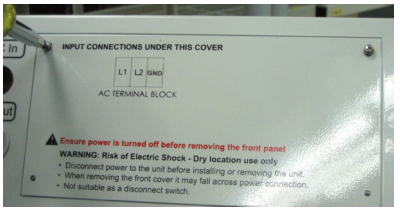
Color of insulation on the wires may differ.

No Neutral connection is required.

If an additional conductor is present, cap off the wire inside the Power Server Module and circuit breaker or local junction box.

9.6.4 The Power Server Module has an 80 amp single pole circuit breaker mounted on the front panel which disconnects the DC input supply from the AUX inputs only. Make sure the breaker is set to “On” before using the AUX as a source.

9.6.5 Replace the front panel with four screws.


INPUT CONNECTIONS UNDER THIS COVER
L1 L2 GND
AC TERMINAL BLOCK
Ensure power is turned off before removing the front panel
WARNING: Risk of Electric Shock - Dry location use only.
• Disconnect power to the unit before installing or removing the unit.
• When removing the front cover it may fall across power connection.
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9.7 Turn on Main Power.

(Go to section 10.0 Controls and Monitoring for start up mode and system checks.)

9.7.1 Channel Status (LEDs check):

Green – ON

Off – OFF

Red – Over current

Orange – Short circuit

9.7.2 Power ON light:

Green – ON

Off – OFF

9.7.3 System Status lights:

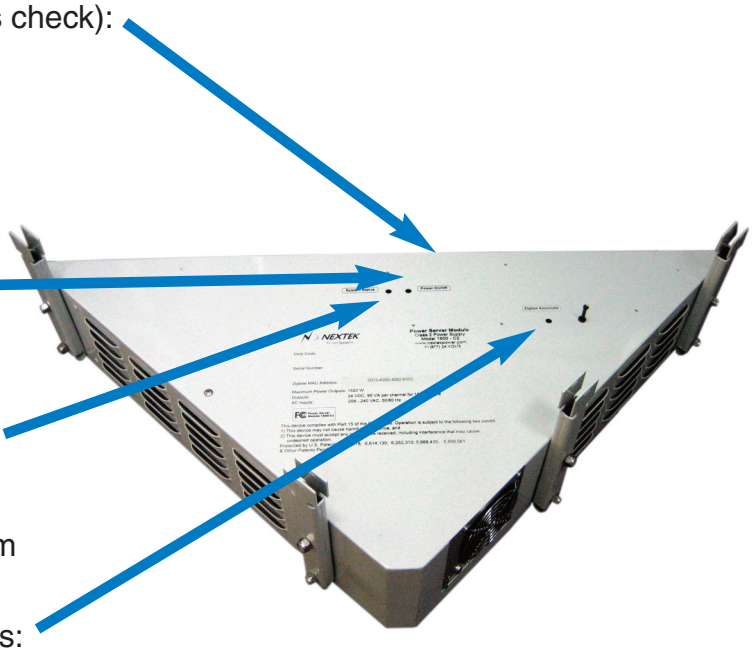
Flashing Green – OK

Flashing Red – System fault

9.7.4 Zigbee Associate lights:

Orange – Not associating

Flashing – Associating

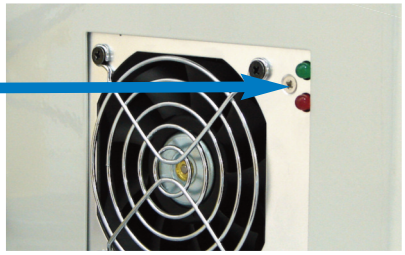


9.7.5 Rectifier Status:

Green – System running

Red – System in standby – startup / shutdown mode

Off – Off



9.7.6 The Power Server Module has 16 channels. Each channel delivers 95 VA continuous.

NOTES:

The Power Server Module total power output is rated to 1520W max.

Each output channel is connected to a single section of a grid using a server to grid cable (not provided).

If two channels are connected to a single grid, then both channels will be automatically turned off, until the problem has been corrected.

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10.0 CONTROL AND MONITORING

10.1 PC-Based Monitoring and Control

10.1.1 To install the enclosed Zigbee USB stick, please use the following files included on the enclosed disc:

Install Zigbee

How to Install a Zigbee USB Stick and Run PS Manager

Zigbee USB Stick Drivers – Windows Vista and Beyond

Zigbee USB Stick Drivers – Windows XP

10.1.2 To install and run the enclosed PS Manager monitoring and control software, please use the following files:

PSmanager_Setup_version.exe to install PS Manager on the computer

PS Manager Software Guide for instructions on how to use PS Manager.

10.1.3 PS Manager software is available for controlling and monitoring the output of each channel independently. Monitoring and reporting the state of the inputs and outputs is as follows:

10.1.3.1 Channel Status (OK, Disabled, Inrush, Over current, Short Circuit)

10.1.3.2 Channel Load in Watts

10.1.3.3 Channel output voltage max since last poll

10.1.3.4 Channel output voltage low since last poll

10.1.3.5 Channel output current max since last poll

10.1.3.6 Channel output current low since last poll

10.1.3.7 Graphical representation of each output with respect to both voltage and power

10.1.3.8 Input Currents (Rectifier) provision for measurement will be provided for total-input current sensors

10.1.3.9 Housekeeping voltages

10.1.3.10 Internal power supply voltages

10.2 Start-Up System Check

Output status LEDs labeled and located adjacent to their respective output.

System startup check as follows:

10.2.1 Turn power on to the Power Server Module

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10.0 CONTROL AND MONITORING

10.2.2 Channels 1–16: flicker on at different colors

10.2.3 3 beeps at 1 second intervals.

10.2.4 Channels 1–16: all turn green on

10.2.5 Channels 1–16: sequentially turn off and stay off

10.2.6 Channels 1–16: all turn off

10.2.7 Channels 1–16: sequentially turn red and stay red

10.2.8 Channels 1–16: all turn red on

10.2.9 Channels 1–16: sequentially turn red off and stay off

10.2.10 Channels 1–16: all turn off

10.2.11 Channels 1–16: flash green on then off sequentially

10.2.12 Channels 1–16: all turn off

10.2.13 Channels 1–16: all green (System OK)

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11.0 TROUBLESHOOTING

11.1 Visual Status Display

System status is indicated by 4 different types of LED indicators on the master controller as follows:

11.1.1 Power LED:

Green – On

Off – Off

11.1.2 System Status:

Flashing Green – On

Flashing Red – Signifies an error

11.1.3 Zigbee Association:

Orange – Not associating

Flashing Orange – Associating

11.1.4 Channel Status:

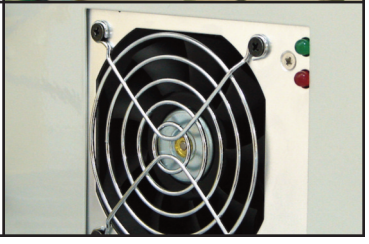
Off – Off

Green – On

Orange – Over current

Red – Short circuit

11.2 Common Problems

Problem: Power LED off		
Possible Casue	Possible Solution	
No power going to the Power Server Module.	• Check to make sure the power feed cable wires are connected to the terminal block under the front cover.	
No power going to the Power Server Module.	• Check to make sure the LED on the back of the housing is green. • Circuit Breaker to the Power Server Module is tripped.	

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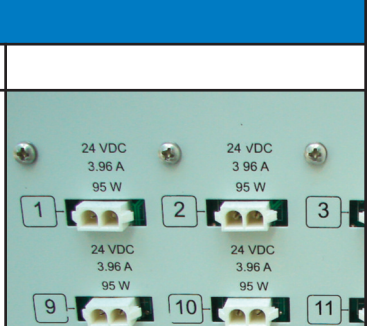
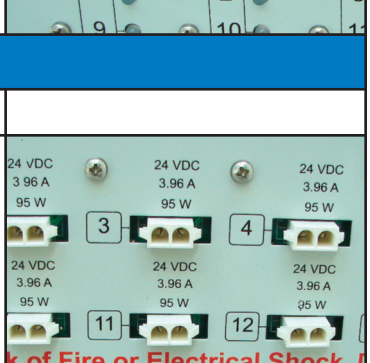
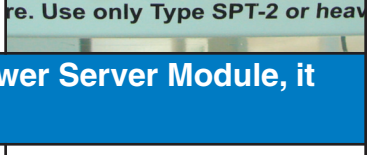
11.0 TROUBLESHOOTING

Problem: System Status LED Flashing Red		
Possible Casue	Possible Solution	
One of the channels has an issue with the output load.	• Check the channel status LEDs to ensure that all are green. If one is red or orange, remove the connector from the Power Server Module and check the load. • If PS Manager is available, review the status of each channel.	
Problem: Channel Status LED Red		
Possible Casue	Possible Solution	
One of the channels has a short circuit issue with the output load.	• Remove the load from the Power Server Module channel by disconnecting the connector. If the channel LED turns green, check the load for a short circuit. • If the channel LED remains red, then call Nextek Customer Service. • If PS Manager is available, review the status of each channel.	
Problem: Channel Status LED Orange		
Possible Casue	Possible Solution	
One of the channels has exceeded the maximum power output capacity of the channel.	• Remove the load from the Power Server Module channel by disconnecting the connector. If the channel LED turns green, redistribute the load to prevent an over load condition. • If the channel LED remains orange, then call Nextek Customer Service. • If PS Manager is available, review the status of each channel	
Problem: As additional loads are connected to the Power Server Module, it causes a shut down.		
Possible Casue	Possible Solution	
The main power feed to the Power Server Module may be below the required specification.	• Check to ensure the main power feed meets the required specifications.	

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12.0 NOTES

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NEXTEK
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